and my Eye was distant from it 8 Inches. And a third proportional to half this from the Diameter of the Sphere is $\frac{5}{88850}$ parts of an Inch. This is therefore the thickness of the Air at this Ring, and a fifth part thereof, *viz.* the $\frac{1}{88850}$th part of an Inch is the thickness thereof at the first of the Rings as above.

I tryed the same thing by laying these Object-Glasses upon flat pieces of a broken Looking-glass, and found the same measures of the Rings: Which makes me rely upon them till they can be determined more accurately by Glasses ground to larger Spheres, though in such Glasses greater care must be taken of a true plain.

These Dimensions were taken when my Eye was placed almost perpendicularly over the Glasses, being about an Inch, or an Inch and a quarter, distant from the incident rays, and eight Inches distant from the Glass; so that the rays were inclined to the Glass in an Angle of about 4 degrees. Whence by the following Observation you will understand, that had the rays been perpendicular to the Glasses, the thickness of the Air at these Rings would have been less in the proportion of the Radius to the secant of 4 degrees, that is of 10000. Let the thicknesses found be therefore diminished in this proportion, and they will become $\frac{1}{88940}$ and $\frac{1}{89003}$, or (to use the nearest round number) the $\frac{1}{89000}$th part of an Inch. This is the thickness of the Air at the darkest part of the first dark Ring made by perpendicular rays, and half this thickness multiplied by the progression, 1, 3, 5, 7, 9, 11, &c. gives the thicknesses of the Air at the most luminous parts of all the brightest Rings, *viz.* $\frac{1}{178000}$, $\frac{3}{178000}$, $\frac{5}{178000}$, $\frac{7}{178000}$, &c. their arithmetical means

means $\frac{2}{178000}$, $\frac{4}{178000}$, $\frac{6}{178000}$, &c. being its thicknesses at the darkest parts of all the dark ones.

OBS. VII.

The Rings were least when my Eye was placed perpendicularly over the Glasses in the Axis of the Rings: And when I viewed them obliquely they became bigger, continually swelling as I removed my Eye further from the Axis. And partly by measuring the Diameter of the same Circle at several obliquities of my Eye, partly by other means, as also by making use of the two Prisms for very great obliquities. I found its Diameter, and consequently the thickness of the Air at its perimeter in all those obliquities to be very nearly in the proportions expressed in this Table.

Angle of Incidence on the Air.		*Angle of Refraction into the Air.*		*Diameter of the Ring.*	*Thickness of the Air.*
deg.	min.				
00	00	00	00	10	10
06	26	10	00	$10\frac{1}{13}$	$10\frac{2}{13}$
12	45	20	00	$10\frac{1}{3}$	$10\frac{2}{3}$
18	49	30	00	$10\frac{2}{4}$	$11\frac{1}{2}$
24	30	40	00	$11\frac{2}{5}$	13
29	37	50	00	$12\frac{1}{2}$	$15\frac{1}{2}$
33	58	60	00	14	20
35	47	65	00	$15\frac{1}{4}$	$23\frac{1}{4}$
37	19	70	00	$16\frac{4}{5}$	$28\frac{1}{4}$
38	33	75	00	$19\frac{1}{4}$	37
39	27	80	00	$22\frac{6}{7}$	$52\frac{1}{4}$
40	00	85	00	29	$84\frac{1}{10}$
40	11	90	00	35	$122\frac{1}{2}$